



Western



Australia.

DEPARTMENT OF AGRICULTURE.

LEAF CURL OF PEACH AND NECTARINE.

(Taphrina deformans.)

W. M. CARNE, F.L.S.,
Economic Botanist and Pathologist.

Leaf Curl occurs wherever peaches and nectarines can be grown successfully, and is a common spring and early summer disease in this State. It also attacks almonds and apricots in some countries, but has not been recorded on these fruits in Western Australia.

Curl is always to be expected in the spring, when preventive measures have not been taken. As is to be expected, the disease is less troublesome in dry springs than in moist ones, for it is a rule that fungi require moisture for rapid development.

Varieties differ in their susceptibility, Elberta, Lady Palmerston and China Flat being among the more susceptible varieties of peach. Seedlings are usually very liable to infection.

Leaf Curl directly affects the leaves, and to a lesser extent the shoots, blossoms, and fruits. Peach blossom and fruits are not affected in this State, though the disease occurs occasionally on nectarine fruits. Evidence of the disease may show soon after the first leaves unfold. The leaves become enlarged, thickened, and distorted over their affected parts. The whole of a leaf may be affected, but usually only portions of variable size show the swelling and blistering which gives to the disease both its popular and technical names. The curled portions are at first green, then yellow, or yellow with a pink tinge, and may become a deep red. A whitish bloom covers the surface. Finally the affected leaves turn brown, die, and fall. In this State no further infection occurs, new leaves are produced, and by Christmas the trees appear quite normal.

Infection of shoots is less common. They are stunted, curved, and more or less distorted, and the terminal bud usually dies. Dieback of the tips of young shoots not visibly affected occurs in severe infection, and is probably associated with the dropping of the leaves. Flower infection has not been noted here. It causes the blossoms to die and fall. Fruit infection is with us confined to nectarines. Rough, red, irregular areas are developed giving the appearance of early ripening.



Peach Shoots with Leaf Curl.

The economic effects of Curl are as follow:—Owing to the dropping of the leaves, the amount of which of course depends upon the severity of the attack, the trees are weakened. This results, to a greater or lesser extent, in non-setting, dropping of young fruit, small fruits of poor quality, die-back of twigs, and a reduction in the production of the fruit buds and healthy growth which are necessary for the next year's crop. On nursery stock, severe infection may result in death or in weak stunted trees not suitable for planting out.

The spores (seed bodies) are developed on the affected leaves. They are formed in closely packed structures (asci), each of which contain eight spores. The asci are formed under the leaf surface, and as they develop cause a blistering of the surface which ruptures exposing the asci which form the bloom seen on the affected leaves. It appears, though there is lack of definite evidence, that the spores from the asci are carried over to the following spring caught in the bud scales and crevices of the bark. Be this as it may, it is fairly definite that infection takes place soon after the leaves appear. The fungus growth produced from the spores penetrates them, leading at first to abnormal stimulation of growth and later to death. Under our conditions no further infection appears to take place, so that the primary spring infection is the only one, and the spores produced on the leaves serve to spread the disease in the following, but not in the present season.

Fortunately Leaf Curl is easily controlled. In fact it responds to treatment more readily than any other important disease of fruit trees. One spraying with lime-sulphur or other fungicide during the dormant period is effective. Where a general purpose spraying with commercial lime-sulphur (1-10) is used, no other treatment is necessary. This precautionary spraying against fungi and insects is advisable on all deciduous fruit trees where action against specific troubles is not necessary. When San Jose Scale is present in the orchard, spraying with lime-sulphur (1-7) when the buds begin to swell is necessary. This will also control Leaf Curl. If Bordeaux (6.4.40) or Burgundy (6.9.40) mixtures are used, they may be applied any time during the dormant stage of the trees.

Note.—Since this article was written, and during the present month, Leaf Curl has been found on peach fruits in several localities.

